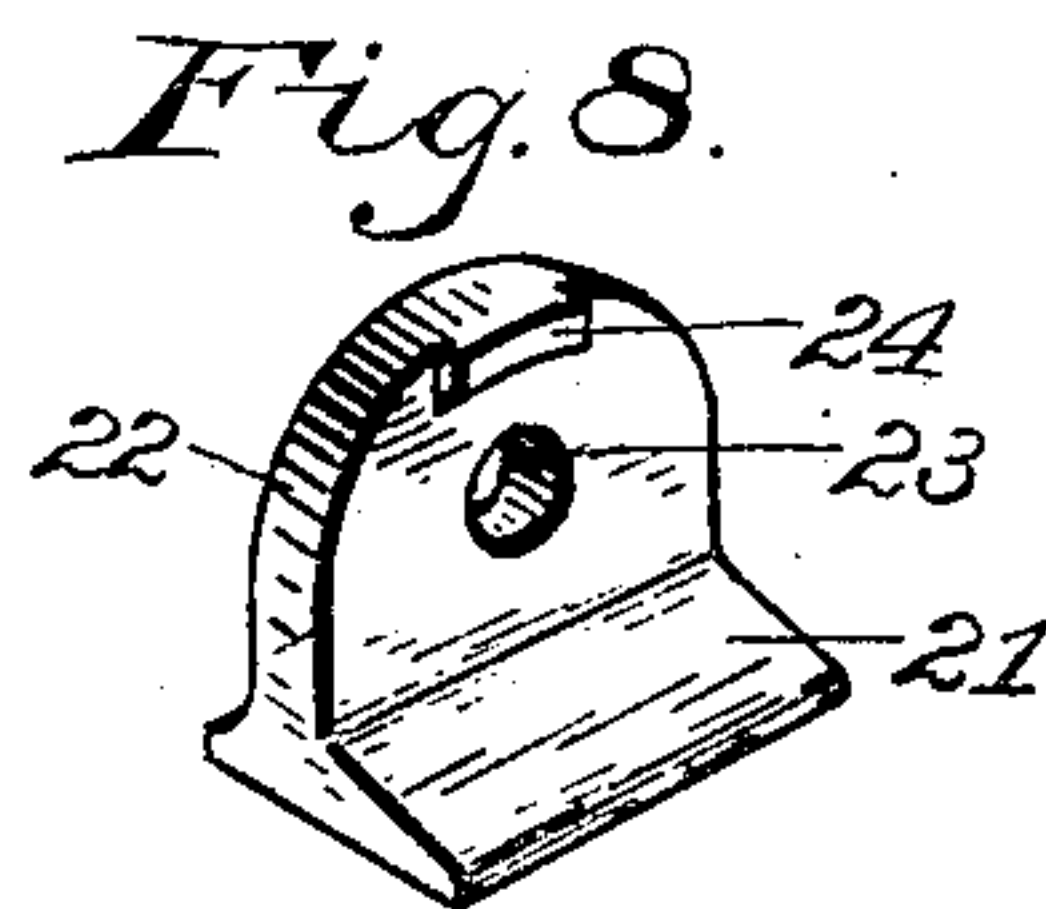
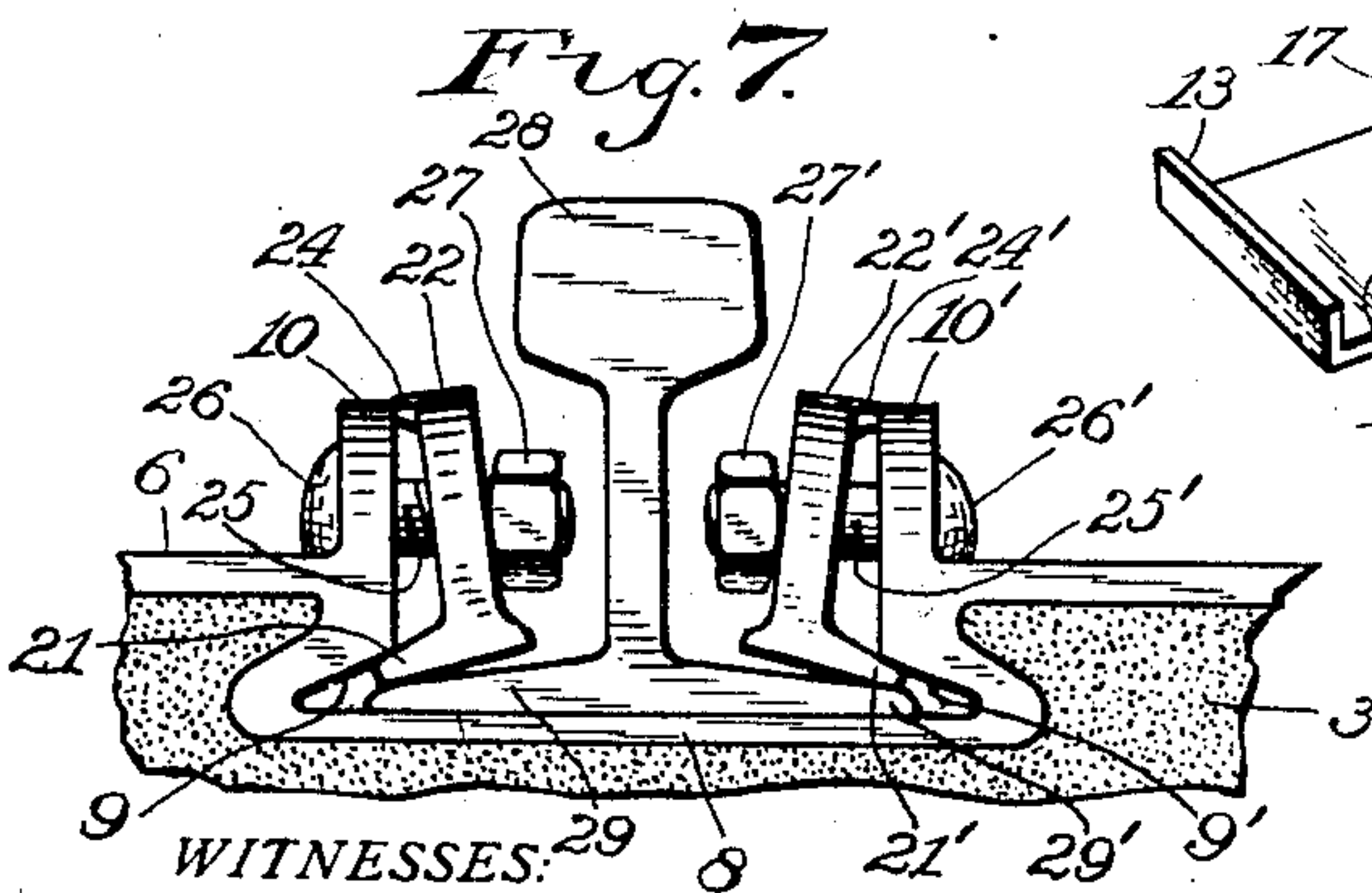
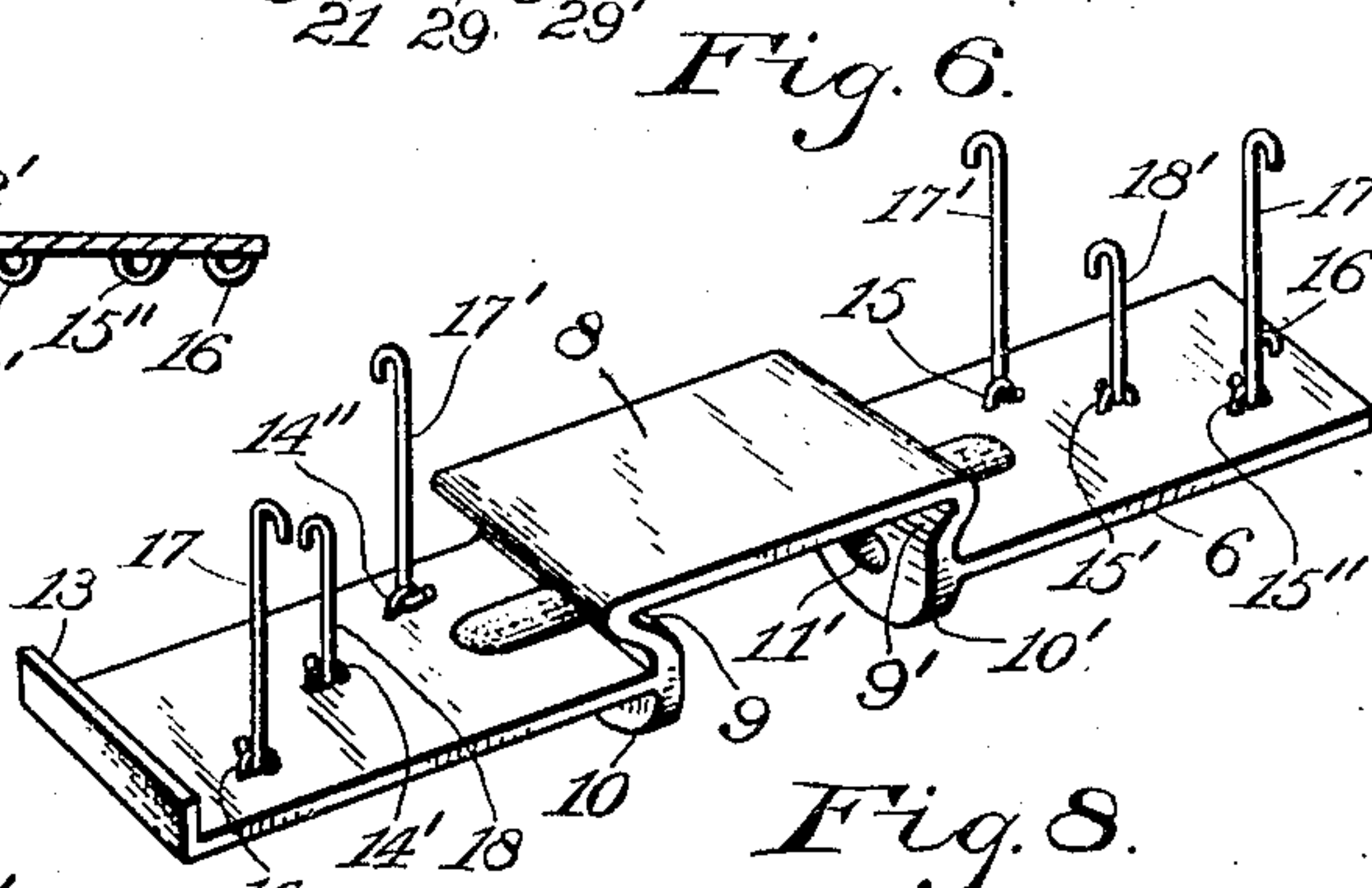
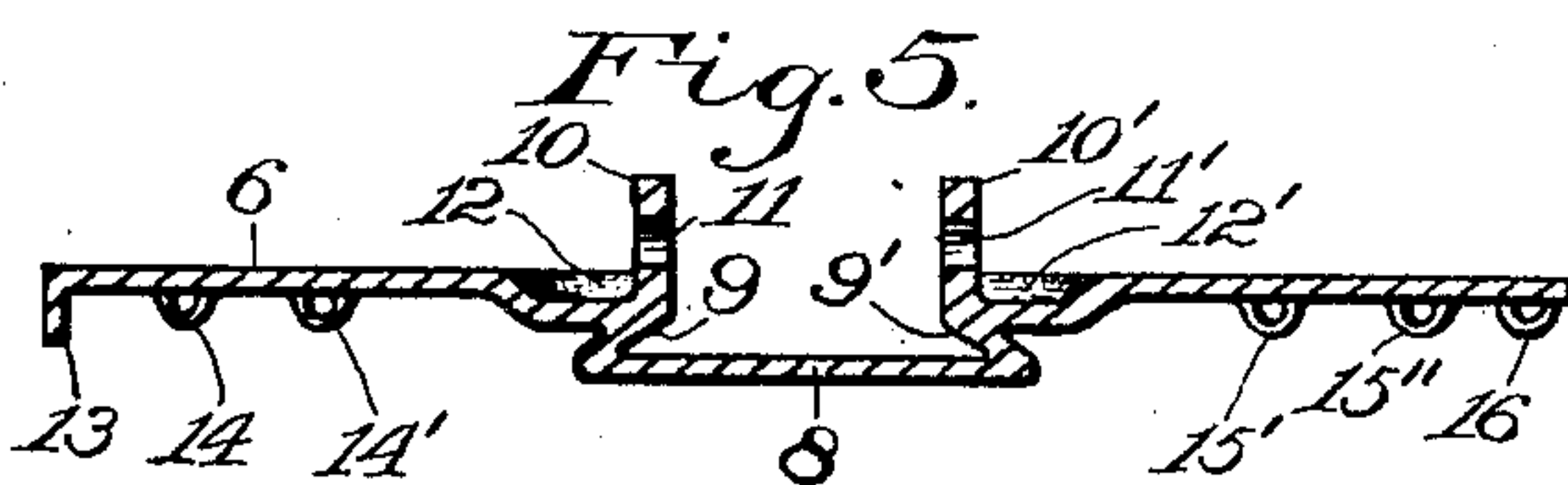
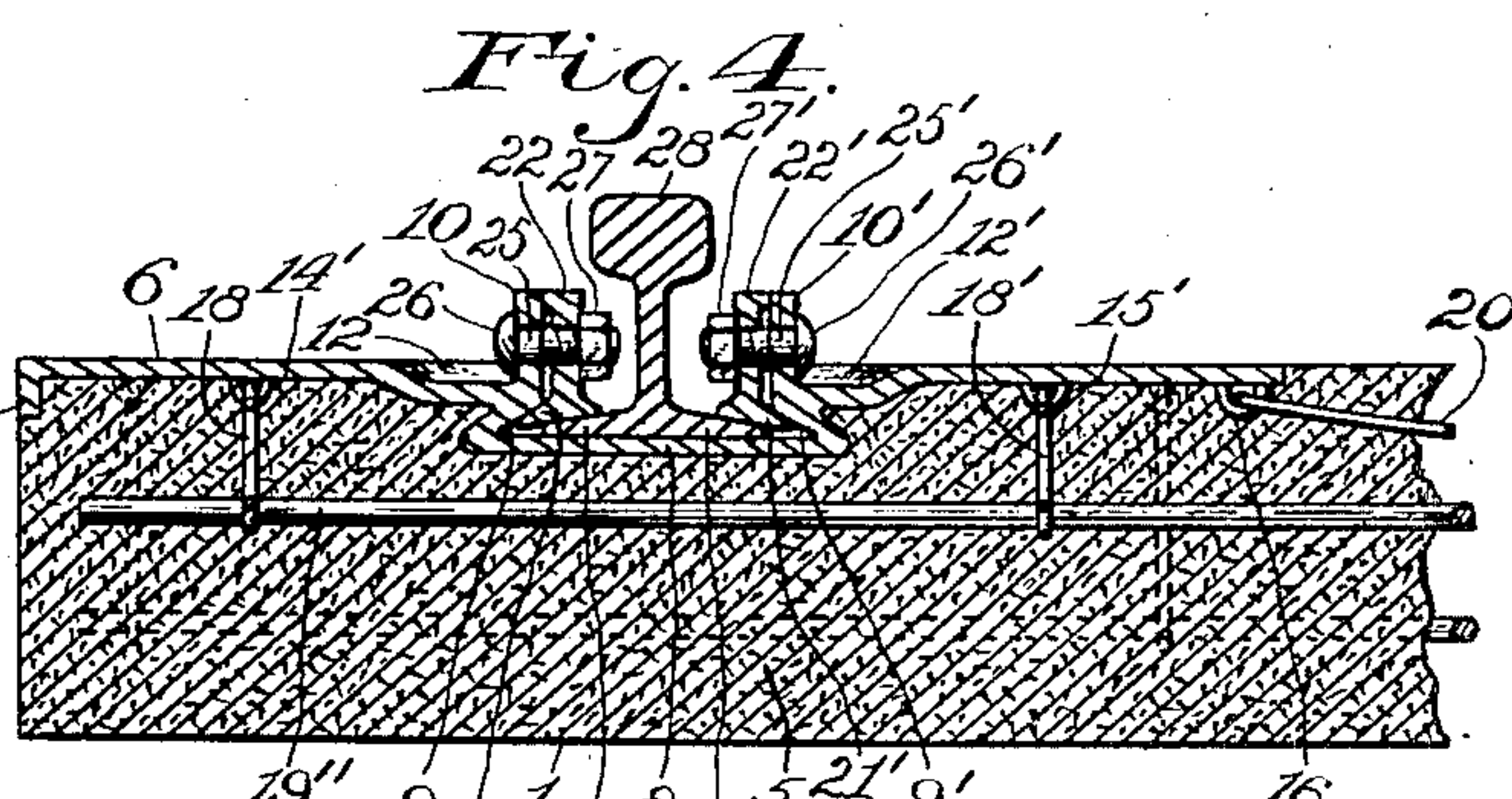
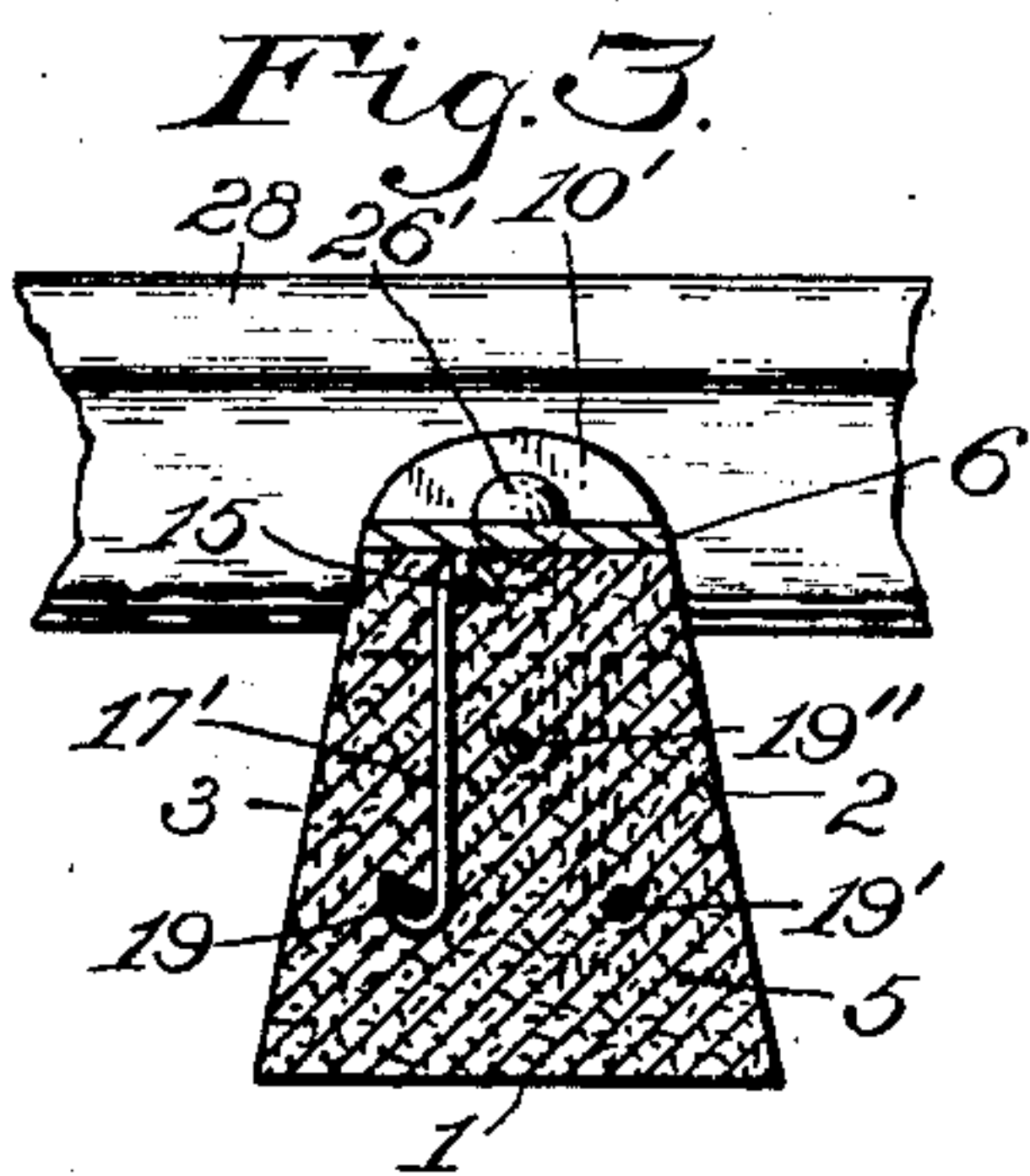
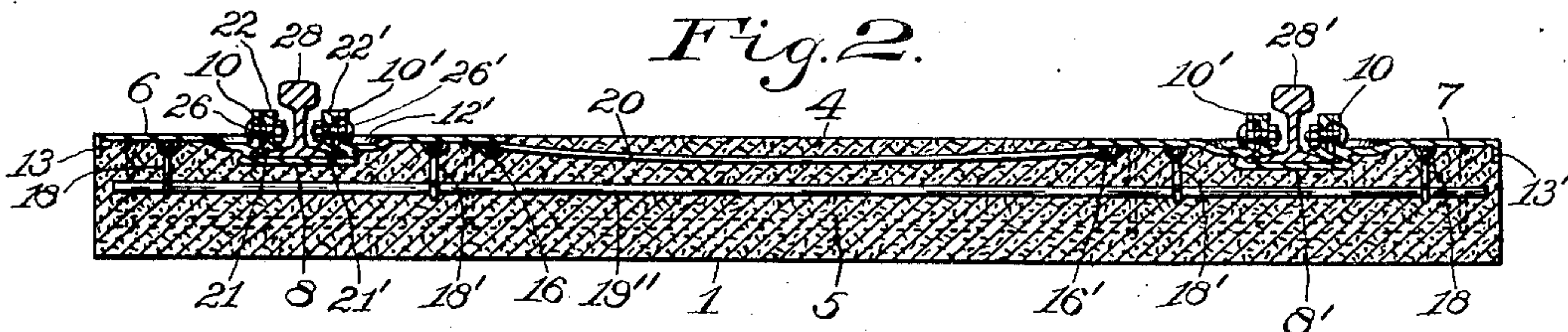
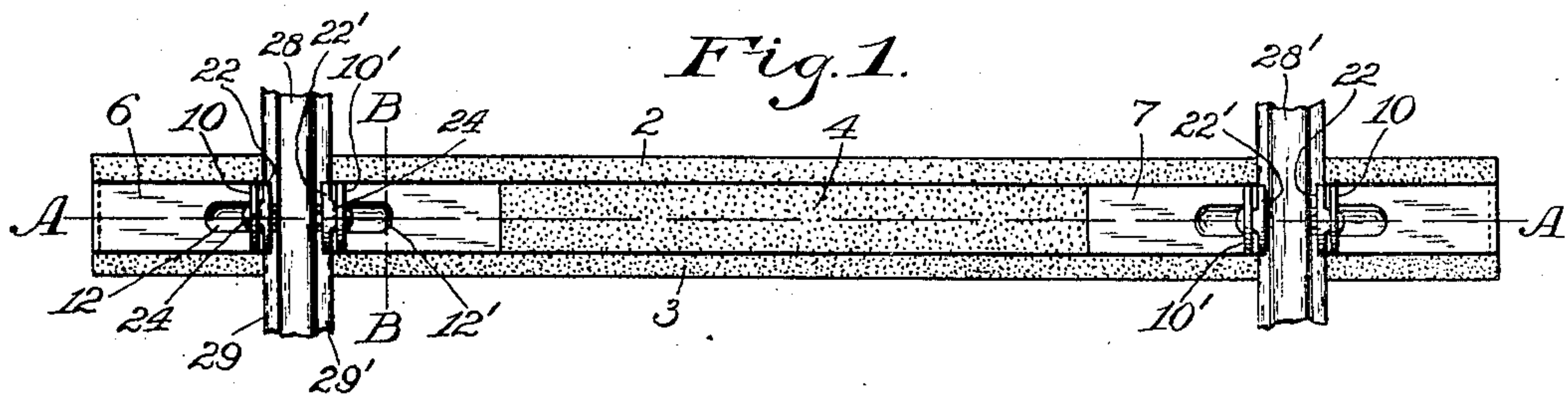


J. G. HILL.
COMPOSITE RAILWAY RAIL TIE.
APPLICATION FILED JUNE 7, 1909.

935,983.

Patented Oct. 5, 1909.



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COMPOSITE RAILWAY-RAIL TIE.

935,983.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that I, JOHN G. HILL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Composite Railway-Rail Ties; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to the type of composite ties that are composed principally of concrete comprising sand and cement and also gravel if desired, or other suitable material molded to shape in plastic condition in suitable molds, and metallic parts securely anchored in the concrete substance, together with adjustable and removable metallic parts for securing the rails to the ties, the invention having reference particularly to the metallic reinforcing of the concrete body parts of the ties and to the devices for securing the rails to the ties.

The objects of the invention are to provide improved railway rail-ties that may be constructed or produced at reasonable cost, and which will be reliable, durable, and economical in use, and be adapted to support and tie rails of various sizes and weights.

With the above-mentioned and other objects in view, the invention consists in an improved composite railway rail-tie comprising a concrete body part having metallic plates secured to the end portions thereof, the plates having recessed parts having rail seats, wedge-shaped clamps adapted to secure the rails on their seats, and bolts for holding the clamps in operative positions; and the invention consists further in the novel parts, and in the combinations and arrangements of parts, as hereinafter particularly described and then defined in the accompanying claims.

Referring to the drawings, Figure 1 is a top plan of one of the improved ties on which are secured fragments of two railway rails; Fig. 2, a longitudinal vertical sectional view on the line A A in Fig. 1; Fig. 3, a transverse sectional view approximately on the line B B in Fig. 1; Fig. 4, a fragmentary sectional view also on the line A A in Fig. 1 on an enlarged scale; Fig. 5, a vertical sectional view of one of the metallic

plates having the rail seat therein also on the line A A in Fig. 1; Fig. 6, an inverted perspective view of the plate and anchors thereof; Fig. 7, a fragmentary side elevation of the tie and end view of one of the rails that is slightly larger in proportion to the tie than the rails shown in the preceding figures; and Fig. 8, a perspective view of one of the wedge-shaped clamps.

Similar reference characters in the different figures of the drawings indicate like parts or features of construction referred to herein.

As preferably constructed the tie has a plane faced under side or bottom 1, two sloping sides 2 and 3 and a relatively narrow upper side or top 4, the body part 5 thereof being composed of suitable plastic material as above indicated. Two similar plates 6 and 7 are bedded in the top of the body part at opposite ends thereof, so that their upper faces are flush with the upper faces of the body part, the middle portions of the plates having recesses or depressions 8, 8', on which to support the rails. The plates may be suitably composed of steel castings or such other material as may be preferred, and at opposite sides of the rail seats are inclined parts 9 and 9' facing downward toward the upper faces of the depressed portions of the plates, each plate having a pair of opposing ears 10 and 10' extending upward from the inclined parts and having bolt holes 11 and 11' respectively therein. The top of the plate preferably has recesses 12 and 12' therein adjacent to the ears to receive the heads of the bolts and also for strengthening the plates at the bases of the ears, and as will be seen especially in Figs. 5, 6 and 7 more clearly there are recesses below the ears into which the flanges of the rails may extend, the recesses being of sufficient capacity to also receive the wedge-shaped portions of the clamps on the tops of the rail flanges. One end of each plate preferably extends to an end of the body part and has a flange 13 or 13' thereon bedded in the end of the body part. The under side of each plate has a suitable number of eyes, as 14, 14', 14'', near one end portion thereof, and similar eyes, as 15, 15', 15'', near the opposite end portion thereof, and another eye 16 or 16' at the latter end of the under side of the plate. A suitable number of anchors, as 17, 17', are connected to some of the eyes, and shorter

anchors 18, 18', are connected to other eyes and embedded in the body part in which are embedded also horizontal rods or bars 19, 19', to which the longer anchors are connected, and another rod or bar 19'' to which the relatively shorter anchors are connected, the arrangement being such that the longer anchors extend nearer to the bottom of the body part than the shorter anchors, and the shorter anchors are arranged in a vertical plane between the planes of the longer anchors. Preferably a tie-rod 20 is connected to the eyes 16 and 16' of the two plates of the tie and embedded in the body part.

Four wedge-shaped clamps, as 21 or 21', are provided for each tie and adapted to enter the recesses under the inclined portions 9, 9', each clamp having a shank 22 or 22' in which is a bolt-hole 23, and at the upper end of which is a projection 24 or 24' adapted to be placed in contact with the upper portion of either ear on the plate. Each tie has four clamp-bolts, there being a pair of bolts, as 25, 25', for each pair of clamps and inserted in the bolt-holes that are in the ears and in the shanks of the clamps, the heads 26, 26', extending into the recesses 12, 12', and seated against the outer sides of the ears, so that the threaded ends of the bolts extend inward each toward the other and have nuts 27 or 27' thereon to engage the sides of the shanks that are opposite the rails 28, 28', which are seated on the depressed portions 8, 8', of the plates with their flanges 29, 29', held securely on the rail seats by the wedge-shaped clamps.

When placing the ties in position on the road-bed the clamps and bolts are removed from the ties and then the rails are placed on the rail seats. In some cases the rails may be of suitable base width so that they may be lowered between the pairs of ears, but if the rails be broader than the space between the ears the rails may be tilted over slightly, so that either flange 29 or 29' may be lowered in advance of the opposite flange and inserted under the inclined parts sufficiently to permit the opposite flange to pass down against the opposite ears to the rail seats. The clamps and bolts are then connected to the ears loosely and the track-gage applied to the rails, and then the clamps are adjusted after bringing the rails to the proper gage. The clamp bolts are tightened, so as to draw the wedge-shaped portions of the clamps against the under sides of the inclined parts 9 and 9' and against the inclined tops of the rail flanges, so as to securely wedge the rail flanges and prevent lateral movement of the rails in either direction. It is obvious that various sizes of clamps may be provided if desired to correspond to different sizes of rails, or in some

cases one size of clamp may be used with different sizes of rails.

Having thus described the invention, what is claimed as new is—

1. A rail-tie including a pair of plates having each a rail seat and integral inclined parts extending partially over the seat, each plate having also opposing ears extending upward from the inclined parts, wedges to engage the inclined parts and provided with shanks to cooperate with the ears, and means for connecting the shanks to the ears to hold the wedges against the inclined parts.

2. A rail-tie including a pair of plates having each a depressed rail seat and opposing recesses at opposite sides of the seat, each plate having also opposing ears extending upward above the recesses, wedges insertible into the recesses, and means for connecting the wedges to the ears to hold the wedges in the recesses.

3. A rail-tie including a body part, a pair of plates bedded in and anchored to the body part and having rail seats and inclined parts extending partially over the seats, the plates having also apertured ears extending upward from the inclined parts, wedges to engage the inclined parts and having apertured shanks thereon, and bolts connecting the shanks removably to the ears.

4. A rail-tie including a body part, a pair of plates on the body part and having rail seats, a tie-rod embedded in the body part and connected to the plates, a plurality of rods embedded in the body part, a plurality of anchors connected to the plates and also to the rods, apertured ears on the plates at opposite sides of the seats, clamps opposite the seats and having apertured shanks opposite the ears, and bolts connecting the shanks removably to the ears.

5. A rail-tie including a body part having a relatively narrow top and sloping sides, two rods embedded in the lower portion and one rod embedded in the upper portion of the body part, two plates having rail seats and bedded in the top of the body part, each plate having two opposing apertured ears thereon and recesses below the ears, said plates having also each a plurality of eyes on the under side thereof, a plurality of anchors connected to the eyes and also to the rods, wedge-shaped clamps extending into the recesses and having apertured shanks provided with projections engaging the ears, and bolts connecting the shanks to the ears.

In testimony whereof, I affix my signature in presence of two witnesses.

JOHN G. HILL.

Witnesses:

HARRY D. PIERSON,
E. T. SILVIUS.